

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claims 1, 3, 7, 8, 10, and 14-18 in accordance with the following:

1. (CURRENTLY AMENDED) A system dispersing the load of a network in data communications between a monitoring unit and a plurality of remote nodes that are connected to the monitoring unit via a broadband network, wherein the monitoring unit comprises:

a communication order determining unit that determines an order of communications between the monitoring unit and the plurality of remote nodes, in order to avoid local traffic congestion in a communication route within the broadband network;

a communication interval determining unit that determines a communication interval between a remote node with which the monitoring unit communicates a first time and a different remote node with which the monitoring unit communicates a next time, among the plurality of remote nodes that communicate with the monitoring unit;

a communication control unit that controls data communications between the monitoring unit and the plurality of remote nodes, according to the communication order and the communication interval, said communication control unit selecting nodes associated with a transmission line to be polled based on a comparison of a first ratio and a second ratio, said first ratio represented by a total number of nodes divided by the number of nodes accommodated by the selected transmission line and said second ratio represented by the total number of nodes involved in the polling divided by the number of nodes polled in each of the transmission lines; and

the communication interval determining unit determining the communication interval by dividing a repetition period, required for repetitively executing communications with all of the plurality of remote nodes, by a total number of the plurality of remote nodes, yielding a quotient from which is subtracted a processing time per single node thereby to obtain the communication interval, the communication interval including a communication waiting time.

2. (CANCELLED)

3. (CURRENTLY AMENDED) The system dispersing the load of a network, according to claim 1, wherein:

the plurality of remote nodes is divided into groups, each group associated with a respective, individual transmission line and comprising plural remote nodes ; and

the operating frequency of each transmission line is increased in proportion to the number of remote nodes of the respective group with which the transmission line is used; and

the monitoring unit further comprises a polling execution determining unit determining the order of transmission lines to be used for polling the divided nodes of the plural groups to be monitored, selecting one transmission line according to the determined order of the transmission lines to be used for the polling, judging whether the polling involved the number of nodes corresponding to the transmission line that has been selected;

and the comparison further comprising comparing a ratio of the total number of nodes, divided by the number of nodes accommodated by the selected transmission line, with a ratio of the total number of nodes involved in the polling divided by the number of nodes executed-polled in each of the transmission lines; determining whether the polling in the transmission line should be executed, or not, executing the polling of one new node to be monitored and updating the total number of nodes involved in the polling and the number of polled nodes of each transmission line, and repeating the determining, selecting, judging, comparing, determining and executing of the polling execution determining unit.

4. (CANCELLED)

5. (PREVIOUSLY PRESENTED) The system for dispersing the load of a network according to claim 1, wherein:

the operating frequency of each transmission line is increased in proportion to the respective line speeds of the divided transmission lines.

6. (CANCELLED)

7. (CURRENTLY AMENDED) A system dispersing the load of a network in a monitoring unit that carries out polling to a plurality of remote nodes, to be monitored, that are connected via a broadband network, wherein the monitoring unit comprises:

a polling order determining unit that determines an order of polling the plurality of nodes

to be monitored;

a polling interval determining unit that determines a polling interval between the nodes to be monitored;

a control unit that controls the monitoring unit to carry out polling of the plurality of nodes to be monitored according to the polling order and the polling interval, said control unit selecting nodes associated with a transmission line to be polled based on a comparison of a first ratio and a second ratio, said first ratio represented by a total number of nodes divided by the number of nodes accommodated by the selected transmission line and said second ratio represented by the total number of nodes involved in the polling divided by the number of nodes polled in each of the transmission lines; and

a communication interval determining unit that determines a communication interval by dividing a repetition period, required for repetitively executing communications with all of the plurality of remote nodes, by a total number of the plurality of remote nodes, yielding a quotient from which is subtracted a processing time per single node thereby to obtain the communication interval, the communication interval including a communication waiting time.

8. (CURRENTLY AMENDED) A method of dispersing the load of a network in data communications between a monitoring unit and a plurality of remote nodes that are connected to the monitoring unit via a broadband network, the method comprising:

determining an order of communications between the monitoring unit and the plurality of remote nodes, in order to avoid local traffic congestion in a communication route within the broadband network;

determining a communication interval between a remote node with which the monitoring unit communicates a first time and a different remote node with which the monitoring unit communicates a next time, among the plurality of remote nodes that communicate with the monitoring unit;

controlling data communications between the monitoring unit and the plurality of remote nodes according to the communication order and the communication interval;

selecting nodes associated with a transmission line to be polled, based on a comparison of a first ratio and a second ratio, said first ratio represented by a total number of nodes divided by the number of nodes accommodated by the selected transmission line and said second ratio represented by the total number of nodes involved in the polling divided by the number of nodes polled in each of the transmission lines; and

determining the communication interval by dividing a repetition period, required for

repetitively executing communications with all of the plurality of remote nodes, by a total number of the plurality of remote nodes, yielding a quotient from which is subtracted a processing time per single node thereby to obtain the communication interval, the communication interval including a communication waiting time.

9. (CANCELLED)

10. (CURRENTLY AMENDED) The method of dispersing the load of a network, according to claim 8, wherein,

the plurality of remote nodes are divided into groups of a plurality of transmission lines, and

the frequency of using the transmission lines divided into the groups for communication is increased in proportion to the number of remote nodes that are accommodated in the divided groups of transmission lines; and

determining the order of transmission lines to be used for polling the divided nodes of the plural groups to be monitored, selecting one transmission line according to the determined order of the transmission lines to be used for the polling, judging whether the polling involved the number of nodes corresponding to the transmission line that has been selected;

and the comparison further comprises comparing a ratio of the total number of nodes, divided by the number of nodes accommodated by the selected transmission line, with a ratio of the total number of nodes involved in the polling divided by the number of nodes executed-polled in each of the transmission lines; determining whether the polling in the transmission line should be executed, or not, executing the polling of one new node to be monitored and updating the total number of nodes involved in the polling and the number of the polled nodes of each transmission line, and repeating the determining, selecting, judging, comparing, determining and executing of the polling execution determining unit.

11. (CANCELLED)

12. (PREVIOUSLY PRESENTED) The method of dispersing the load of a network, according to claim 8, wherein:

the plurality of remote nodes are divided into groups of a plurality of transmission lines, and

the frequency that the transmission lines divided into the groups are used for

communications is increased in proportion to the line speeds of the divided transmission lines; and further comprising:

determining the communication interval by dividing a repetition period, required for repetitively executing communications with all of the plurality of remote nodes by a total number of the plurality of remote nodes, yielding a quotient from which is subtracted a processing time per single node thereby to obtain the communication interval, the communication interval including a communication waiting time.

13. (CANCELLED)

14. (CURRENTLY AMENDED) A method of dispersing the load of a network in a monitoring unit that carries out polling to a plurality of nodes to be monitored that are connected via a broadband network, the method comprising:

determining an order of polling the plurality of nodes to be monitored;  
determining a polling interval between the nodes to be monitored; and  
controlling the monitoring unit to carry out polling of the plurality of nodes to be monitored, according to the polling order and the polling interval;

selecting nodes associated with a transmission line to be polled based on a comparison of a first ratio and a second ratio, said first ratio represented by a total number of nodes divided by the number of nodes accommodated by the selected transmission line and said second ratio represented by the total number of nodes involved in the polling divided by the number of nodes polled in each of the transmission lines; and

determining a communication interval by dividing a repetition period, required for repetitively executing communications with all of the plurality of remote nodes by a total number of the plurality of remote nodes, yielding a quotient from which is subtracted a processing time per single node thereby to obtain the communication interval, the communication interval including a communication waiting time.

15. (CURRENTLY AMENDED) A computer-readable recording medium recorded with a program that is used in a system dispersing the load of a network in data communications between a monitoring unit and a plurality of remote nodes that are connected to the monitoring unit via a broadband network, wherein:

the recording medium has been recorded with a program for making the monitoring unit function as:

a communication order determining unit that determines an order of communications between the monitoring unit and the plurality of remote nodes, in order to avoid local traffic congestion in a communication route within the broadband network;

a communication interval determining unit that determines a communication interval between a remote node with which the monitoring unit communicates this time and a different remote node with which the monitoring unit communicates next time, among the plurality of remote nodes that communicate with the monitoring unit; and

a communication control unit that controls data communications between the monitoring unit and the plurality of remote nodes, according to the communication order and the communication interval and determines the communication interval by dividing a repetition period, required for repetitively executing communications with all of the plurality of remote nodes by a total number of the plurality of remote nodes, yielding a quotient from which is subtracted a processing time per single node thereby to obtain the communication interval, the communication interval including a communication waiting time, said communication control unit selecting nodes associated with a transmission line to be polled based on a comparison of a first ratio and a second ratio, said first ratio represented by a total number of nodes divided by the number of nodes accommodated by the selected transmission line and said second ratio represented by the total number of nodes involved in the polling divided by the number of nodes polled in each of the transmission lines.

16. (CURRENTLY AMENDED) A system for dispersing the load of a network in a monitoring unit that carries out polling to a plurality of nodes to be monitored that are connected via a broadband network, wherein:

the monitoring unit comprises:

a polling order determining unit that determines an order of polling the plurality of nodes to be monitored;

a polling interval determining unit that determines a polling interval between the nodes to be monitored; and

a control unit that controls the monitoring unit to carry out polling of the plurality of nodes to be monitored, according to the polling order and the polling interval and determines the order of transmission lines to be used for polling the divided nodes of the plural groups to be monitored, selecting one transmission line according to the determined order of the transmission lines to be used for the polling, judging whether the polling involved the number of nodes corresponding to the transmission line that has been selected; comparing a ratio of the total

number of nodes, divided by the number of nodes accommodated by the selected transmission line, with a ratio of the total number of nodes involved in the polling divided by the number of nodes ~~executed-polled~~ in each of the transmission lines; determining whether the polling in the transmission line should be executed, or not, executing the polling of one new node to be monitored and updating the total polling ~~executed-number~~ and the polling ~~executed-number~~ for each transmission line, and repeating said determining, selecting, judging, comparing, determining and executing of the polling execution determining unit.

17. (CURRENTLY AMENDED) A method of dispersing the load of a network in a monitoring unit that carries out polling to a plurality of nodes to be monitored that are connected via a broadband network, the method comprising:

determining an order of polling the plurality of nodes to be monitored;  
determining a polling interval between the nodes to be monitored; and  
controlling the monitoring unit to carry out polling of the plurality of nodes to be monitored, according to the polling order and the polling interval; and  
determining the order of transmission lines to be used for polling divided nodes of the plural groups to be monitored, selecting one transmission line according to a determined order of the transmission lines to be used for the polling, judging whether the polling involved the number of nodes corresponding to the transmission line that has been selected; comparing a ratio of the total number of nodes, divided by the number of nodes accommodated by the selected transmission line, with a ratio of the total number of nodes involved in the polling divided by the number of nodes ~~executed-polled~~ in each of the transmission lines; determining whether the polling in the transmission line should be executed, or not; executing the polling of one new node to be monitored and updating the total number of nodes involved in the polling and the number of the polled nodes of each transmission line, and repeating said determining, selecting, judging, comparing, determining and executing of the polling execution determining unit.

18. (CURRENTLY AMENDED) A computer-readable recording medium recorded with a program that is used in a system for dispersing the load of a network in data communications between a monitoring unit and a plurality of remote nodes that are connected to the monitoring unit via a broadband network, wherein:

the recording medium has been recorded with a program for making the monitoring unit function as:

a communication order determining unit determining an order of communications between the monitoring unit and the plurality of remote nodes, in order to avoid local traffic congestion in a communication route within the broadband network;

a communication interval determining unit determining a communication interval between a remote node with which the monitoring unit communicates this time and a remote node with which the monitoring unit communicates next time, among the plurality of remote nodes that communicate with the monitoring unit; and

a communication control unit controlling data communications between the monitoring unit and the plurality of remote nodes, according to the communication order and the communication interval; and

a polling execution determining unit determining the order of transmission lines to be used for polling the divided nodes of the plural groups to be monitored, selecting one transmission line according to the determined order of the transmission lines to be used for the polling, judging whether the polling involved the number of nodes corresponding to the transmission line that has been selected; comparing a ratio of the total number of nodes, divided by the number of nodes accommodated by the selected transmission line, with a ratio of the total number of nodes involved in the polling divided by the number of nodes executed-polled in each of the transmission lines; determining whether the polling in the transmission line should be executed, or not, executing the polling of one new node to be monitored and updating the total number of nodes involved in the polling and the number of the polled nodes of each transmission line, and repeating said determining, selecting, judging, comparing, determining and executing of the polling execution determining unit.